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April 20, 2009

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Re: Mapping Arizona's solar-ready rooftop space and solar system locations to maximize effective deployment of distributed generation for utilities and assist consumers in calculating the optimal placement of solar panels.

Dear Sirs:

During last month's Summer Preparedness meeting I asked your Companies to prepare for the Commission's consideration a proposal for building and funding a solar map of Arizona that would offer utility consumers an opportunity to visualize the optimal placement of solar systems on residential and commercial rooftops and provide utilities a tool for the strategic deployment of distributed solar throughout their service territories.[1] I write today to reiterate that request, and to inquire whether your Companies have considered other options for guiding the most impactful

[1] I requested that your Companies prepare this proposal as part of your 2010 RES Implementation Plans, but for those Companies that have pending rate cases, I would request that you submit the proposals in those dockets, as well.

deployment of solar throughout the state. These options could include a heightened rebate, through the Renewable Energy Standard ("RES"), for customers whose homes and businesses are located in congestion zones where the deployment of solar holds the greatest promise for delaying or eliminating the need for new distribution and transmission infrastructure. Additionally, I would request more information from the utilities regarding the possibility of employing heightened rebates for those who choose to adopt distributed solar in the early years of the RES program, or those who adopt solar on larger scales.

As you know, Arizona has one of the most aggressive distributed generation requirements in the nation, as our utilities must meet at least 30 percent of their total 15 percent renewable energy requirement under the RES from distributed sources such as solar rooftops and backyard wind generators. This distributed energy requirement will mean that on a per capita basis, there will likely be more solar rooftops in Arizona than in any other state. Moreover, it would appear that interest continues to grow among our state's residents in the installation of solar rooftops, as the installation of solar rooftops in Arizona Public Service Company's service territory alone grew in 2008 by 70 percent over the previous year.[2]

Additionally, a report recently conducted pursuant to a Commission Order regarding the cost effectiveness and value of distributed solar generation in APS' service territory demonstrated that solar rooftops could save consumers hundreds of millions of dollars. These savings would be achieved from deferring or outright eliminating the need for some new generation, energy purchases, distribution and substation construction, and extra high voltage transmission lines. Specifically, the Distributed Renewable Energy Operating Impacts and Valuation Study ("Valuation Study") Ordered by Decision No. 70130 determined that under a high penetration scenario for solar rooftops, APS and its customers would, by the Year 2025, save $7.8 million in capital reductions for distribution; $13 million in capital reductions for transmission; $35.2 million in capital cost reductions for generation; and $202 million in total energy related and fixed operations and maintenance reductions.[3]

The Valuation Study found that in 2007, there were 262 million square feet of rooftop space available for solar panel deployment. Under a high penetration scenario, the residential market potential for energy production from distributed solar actually exceeds what is required under the RES.[4] However, the Study also concluded that in order to maximize the quantitative benefits associated with the wide scale adoption of solar, the Company and the Commission should find ways to identify areas of future high growth and target those locations for the deployment of residential and commercial solar. According to the Valuation Study, "Distribution projects can only be deferred if solar DE is strategically located to reduce peak loads in the specific project regions."[5] It would seem to reason that in order to encourage the adoption of solar in congestion zones and areas of high growth, utilities should first engage in mapping of those zones, and then consider the adoption of strategies to achieve the necessary deployment. Please tell the Commission whether you agree, and, if so, how you would envision such a map being designed.

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[2] See *Distributed Renewable Energy Operating Impacts and Valuation Study*, RW Beck, January 2009, page 1-5, stating that "demand (for residential PV) is clearly growing..." The Arizona Corporation Commission ordered that the study be conducted for APS' service territory in Decision No. 70310.

[3] See Valuation Study, pages 6-8 to 6-11.

[4] Id, page 2-48.

[5] Id, page 3-13.

Additionally, though it is not mentioned in the Valuation Study, several municipalities in other states are developing web sites that make maps and other pertinent information more publicly available. These sites would include information regarding the tilt and shading of the rooftop space of individual houses and businesses, as well as maps of the locations of solar installations throughout a given city or county.[6] To date, such mapping projects have been completed in San Francisco, and are underway in San Diego, Salt Lake City, and Los Angeles County.[7] I would be interested in better understanding your utilities' views of the efficacy of such a mapping system, how one could be designed for Arizona, and how it could be funded, whether through the RES or through some mixture of RES funding together with federal stimulus funds available at the U.S. Department of Energy and partnerships with the state's Universities.

The Valuation Study also recommends that the Commission consider rewarding early adopters of solar, or in the alternative rewarding residents and business owners who adopt solar on larger swaths of their rooftops, as a method of addressing the need to jump start the market for solar, and drive down per Mwh administrative costs associated with solar deployment.[8] I would like the utilities to tell the Commission whether they have analyzed such an approach in their service territories.

Finally, the Valuation Study concludes that APS and the Commission should consider ways to more fully encourage the adoption of distributed renewable energy at multi-family housing and community centers. Please inform the Commission of any strategies you have identified for encouraging the implementation of distributed solar at these facilities, including, among other things, possible enhancements to the Commission's net metering rules.

Thank you for your attention to these matters.

Sincerely,

Kris Mayes
Chairman

Cc: Commissioner Gary Pierce
Commissioner Paul Newman
Commissioner Sandra Kennedy
Commissioner Bob Stump
Ernest Johnson
Janice Alward
Michael Kearns
Rebecca Wilder

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[6] It may also be possible to track through such a solar map, with the permission of the system owners, the daily electric output of solar systems in Arizona. In the case of Solar City, the Company monitors remotely the solar electric output of all the systems it installs.

[7] It is my understanding that CH2M Hill, the global engineering firm, is working on the solar maps in these areas. The web site containing San Francisco's solar map can be found at: www. http://sf.solarmap.org/.

[8] Valuation Study, page 6-25.